



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

They are very expert in tracking, and know their own country very well, but I have often completely bewildered one when in a place he had not been before. They have but little sense of direction. They know the localities of a region and thus find their way about. In a strange country they are comparatively helpless. They have a good sense of humor, and are very sensitive to ridicule. Dances are common among them, and generally celebrate some recent occurrence.

There are no chiefs, but they seem to be governed by the oldest men, who form a kind of council. Organized wars between the tribes rarely occur, but if an aborigine strays away from his own country and is found by another tribe, he is immediately slain by them.

The members of a tribe have no fixed habitation in their own region, but roam from place to place, wherever food happens to be the most plentiful. In fact, in habit, structure and mental capacity, they seem to be the lowest forms of men.

—:O:—

ZOOLOGICAL GARDENS, A CRITICAL ESSAY.

BY THEODORE LINK.

THERE is a great deal more in and about zoölogical gardens, I believe, than most people are apt to imagine; indeed, a lamentable ignorance or indifference concerning the true philosophy of the subject seems to prevail, generally and individually.

Hence zoölogical gardens are probably the most conservative institutions to be met with. One may visit them, year after year, and while everything around them abounds with the healthful changes of our progressive age, they offer but few evidences of a proper spirit towards scientific advancement. It is certainly strange that some of the shining lights in natural history have never raised an indignant cry against the obvious defects and blunders thrust upon our vision at every step. Only occasionally we meet with some traces of what might be termed semi-humanitarian attempts at transcendental zoölogy; but while these efforts in the right direction are hailed with genuine satisfaction by every student of animal life, it is a pity that they should be confined to specimens of comparatively small importance and but little market value, such as deer and other native herbivores. The lions and tigers, etc., the acknowledged monarchs and nobil-

ity of the animal kingdom, are yet allowed to languish in dungeons and vaults.

Indeed, the noble beasts of the desert appeal particularly to our sympathy from their iron-grated cells, and their perpetual, uneasy walking to and fro is intensely distressing to every compassionate beholder. In briefly alluding to this sad feature of every zoölogical collection, I do not so much desire to open a new field of operation to the societies for the prevention of cruelty to animals, but rather to impress upon the managers of zoölogical gardens, at least, that the sight of cruelty, however unintentional, must necessarily detract from the pleasure and comfort of the visitors. The superficial observer may not recognize such niceties of distinction, but to the mind trained in utilitarian pursuits, they are important considerations in the attainment of the highest possible state of mental and physical comfort for all concerned.

Before proceeding any further, let us first consider the real mission of zoölogical gardens in contradistinction to menageries or "shows." I have before me the constitutions and by-laws of the different zoölogical societies in the United States, and according to the language of these documents, this mission is ostensibly "the study and dissemination of a knowledge of the natural habits of the animal kingdom." This definition does not seem to me to cover the ground, for the reason that there must first be the necessary *opportunities* before we can study; and *these* the disappointed zoölogist seeks in vain. In fact, in this respect, the zoölogical garden of to-day affords but few more advantages than any of those traveling "shows" that come to us every season. By way of example, I have passed days and weeks by many a lion's cage in European and American gardens, intent upon study and observation; but with the exception of having, by numerous sketches, impressed upon my mind the *anatomical* peculiarities of these interesting animals, I cannot say that in other respects my perseverance has been rewarded to any great extent. I have simply found that an animal, as closely confined as most of them are in zoölogical gardens, retains *none* of its *natural habits*; it only exists—a mere automaton; and even this existence is seemingly under protest. Therefore, this aforesaid "study and dissemination of a knowledge, etc.," is "a delusion and a snare."

In reviewing a few of my observations as well as some results

of statistical data which I have collected on the subject, I may simply record what hundreds of others have undoubtedly observed before me—they may not have deemed worth mentioning conditions which are so obviously the inevitable consequences of the current system of confinement; but in my opinion they furnish an array of pregnant facts for the consideration of persons financially interested in zoölogical collections, too important to pass by unnoticed. For instance, it may not matter very much for “show” purposes if most of the carnivores *are* partially blind, and painfully stiff along the spinal column, since the public at large does not easily notice these defects; but taken in evidence as symptoms of premature physical decay, and in connection with the fact that all closely confined animals last on an average not even two-thirds of their natural life,¹ these considerations gain in importance and become powerful arguments in favor of a rational reconstruction of the animals’ places of abode. Now suppose a farmer discovered that his stock was getting blind, and stiff, and dying off before their time on account of the defective construction of the stables, what would he do? He would naturally remedy these defects by reconstructing his stables.

There is an impression among “animal men” that some animals will not breed in captivity. It would be strange, indeed, if they did under the existing circumstances. Yet I am convinced that it is not the sense of captivity which restrains them from propagating, but rather the incongruity between their artificial habitation and their natural habits. The black bear is a striking example. You will find him in the so-called bear pit. Why bears should invariably be kept in *pits* has never been quite satisfactorily explained to me. The pit idea was, I believe, first introduced in the Jardin des Plantes at Paris, but the savant, who originated it, died long ago without entrusting to posterity the leading thought which moved him to this achievement. Since that day all “zoölogical” bears are consigned to pits.

This brings us face to face with one of the most lamentable features of zoölogical gardens, one which has retarded their scientific and artistic development more than anything else. I mean this servile, wholesale copying after “old masters” without any apparent discrimination. Yet there is scarcely a better field for

¹ Provided that Flourens’ theory on the subject of longevity is approximately applicable to the undomesticated species of mammals as well.

the exercise of all the originality and versatility of a creative genius than a zoölogical garden.

Let us now, for the sake of demonstration, examine why Mr. and Mrs. Bruin refuse to turn their pit into a nursery. The free black bear has an economical way of spending the snowy season—he hybernates. As a captive, however, he is up and about all winter, because he does not recognize the paved recesses and vaults of the conventional pit as proper places for retirement. The loss of his good long snooze seems to unsettle him completely, and lead him into disastrous irregularities in his mode of life. For instance, instead of mating during the second fortnight of the October term, as is his wont at liberty, I have known him to copulate as early as the end of July. Now, since in the natural state the periods of gestation and hybernation fall together, the logical conclusion would be that with bears a periodical suspension of animation is not only beneficial but quite necessary to the development of vigorous offspring. That captivity does not produce absolute sterility in bears, is evinced by the fact that a female in the St. Louis gardens recently miscarried about a month after conception. Such knowledge, added to some native ingenuity, should enable us to construct enclosures for bears, where, in all probability, they would breed successfully.

The landscape features of a zoölogical garden claim the full attention of the designer. The aim here must be to unite beauty with use. On the whole, I would like to see the ruling principle advocated in these pages for the care of the animals, extended to their surroundings, by imitating, as near as the climate permits, the scenic characteristics of the homes of the various specimens confined; this would be a pleasant delusion to both visitor and animal. These widely different styles of scenery should, of course, be blended into a harmonious and well-balanced composition by a very guarded and gradual transition, thus affording delightful surprises at every step.

The limits of this article do not admit of my giving a summary of the results of investigation and study on this interesting subject, or a graphic pen picture of the model zoölogical garden, such as I see it in my fancy—a very Eden of beauty and harmony, bursting upon us like a revelation, and fascinating the visitor by its innate correctness and completeness. I believe, however, I have, in a general way, indicated the road upon which

such a state of perfection could be reached. The foremost condition will be the rational construction of *enclosures*—not cages—liberal in extent, and in strict accordance with the respective habits and instincts of the animals to be confined. *Cages* cannot well be avoided by traveling menageries; in zoölogical gardens they are inexcusable.

Of the late Mr. Darwin, it is said that “he seemed by gentle persuasion to penetrate that reserve of nature which baffles smaller men.” How much to be regretted that Mr. Darwin was not commissioned to reconstruct the great London “Zoo” in Regent’s Park!

—:O:—

THE COPPERHEAD.

BY RICHARD E. KUNZÉ, M.D.

ON the last day of August of this year, I had the good fortune to come within an unpleasantly close proximity of the head of *Ancistrodon contortrix* without being bitten by that reptile, and from the peculiar circumstances connected with it, I am led to propound these questions:

1. Does *Ancistrodon contortrix* ever strike at an enemy without being coiled up in that characteristic attitude of *Crotalus durissus*, previous to the latter’s giving his fatal blow and while sounding his rattle?

2. Does *A. contortrix* ever feign death?

The reason why I am prompted to ask these questions is, because the only other specimen of the copperhead I ever met during a period of twenty-nine years of collecting, was one I encountered in a coiled up and striking attitude, as I supposed, and under circumstances which I will further on relate. Yet I am fully aware that the rattlesnake, when striking in order to seek food, does not first coil himself nor even sound his warning note previous to striking the fatal blow. These observations I have verified on a caged specimen, as reported in Nos. 21 and 22 of Vol. I of *Science News* in the year 1879.

On the day mentioned I collected a quantity of *Monarda punctata* in New Jersey, a quarter of a mile from the depot of Matawan, in Monmouth county. The field where I obtained the horsemint, of which I use considerable for medicine, was a narrow strip of fallow land in the same enclosure with a cornfield to